

## DIGITAL MANUFACTURING and Proof-of-Process for Automotive Fuel Cells

**PROJECT COORDINATOR** - Dr. Joël Pauchet – CEA-Tech LITEN, Grenoble, France - [joel.pauchet@cea.fr](mailto:joel.pauchet@cea.fr)  
**TECHNICAL COORDINATOR** - Dr. Tony Wilson – Intelligent Energy Ltd, Loughborough, UK - [tony.wilson@intelligent-energy.com](mailto:tony.wilson@intelligent-energy.com)

<http://www.digiman.eu>

Current automotive PEM fuel cell stack manufacturing is very much oriented towards meeting the volume requirements of the day. Stacks are invariably built using components which in some cases are selected based on bespoke quality requirements. As a result manufacturing through-put is too slow and high in cost to meet the 2020 targets. If PEM fuel cells are to make a significant impact on the modern auto-industry in the EU, development of the manufacturing approach to all components must be made to facilitate high volume automated manufacture and inspection capability throughout the supply chain.

The **DigiMAN project** will raise the manufacturing level by introducing enhanced design for assembly, automated processes for assembly, inspection, and test, coupled with materials acceptance standards.

Duration: 3 years (2017-2020)

Budget: 3,486,965.00€

### CONSORTIUM & PROJECT STRUCTURE



**CEA Tech - LITEN, France**  
Project Coordinator



**Intelligent Energy Ltd., United Kingdom**  
Technical Coordinator & Digital Manufacturing work package leader



**Toyota Motor Corporation – Europe, Belgium**  
Requirement Setting & PoP Measurement work package leader



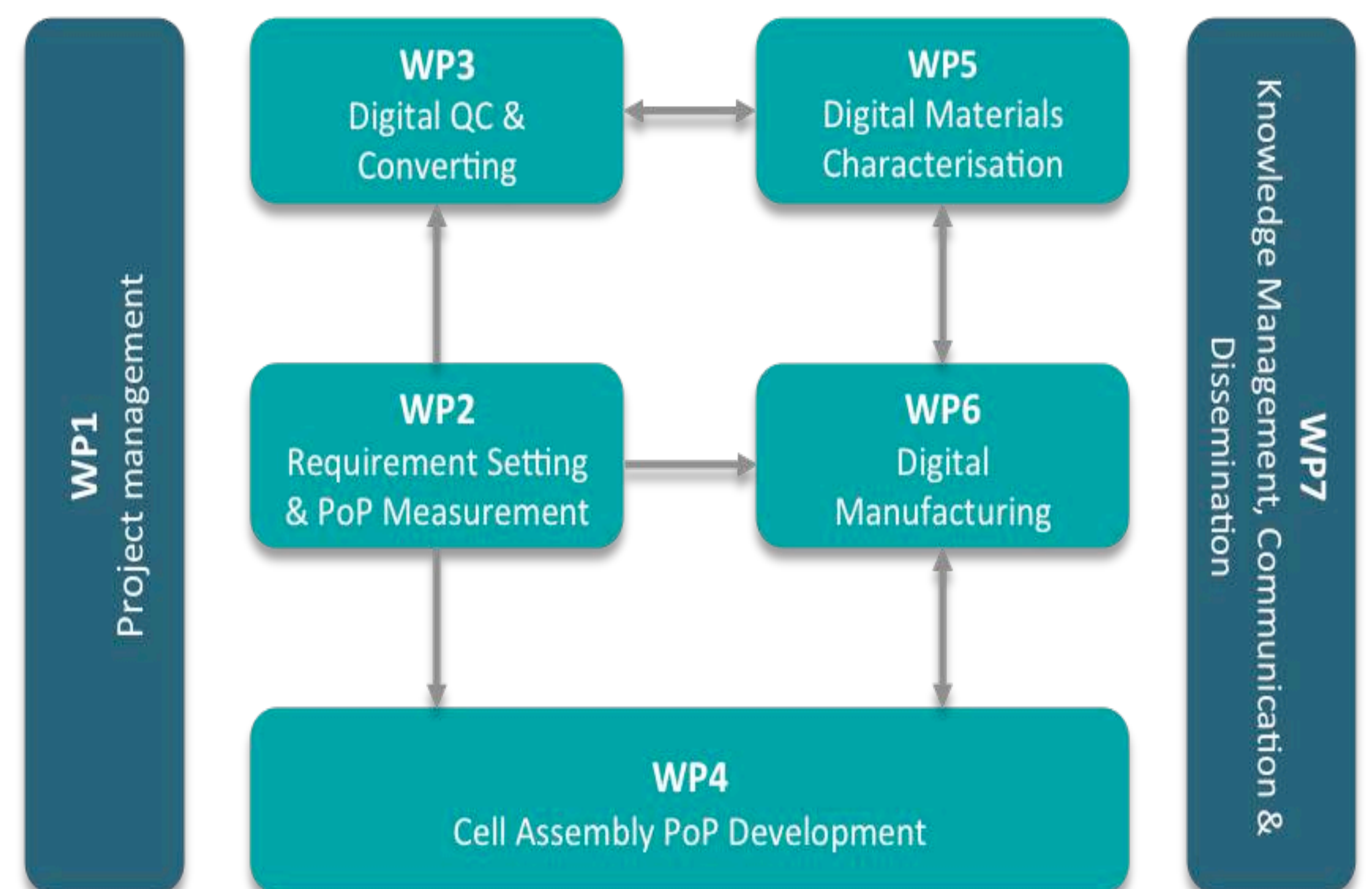
**Freudenberg Performance Materials, Germany**  
Digital QC & converting work package leader



**Warwick Manufacturing Group, United Kingdom**  
Cell Assembly PoP Development work package leader



**Pretexo, France**  
Knowledge Management, Communication & Dissemination work package leader



### OBJECTIVES

#### GENERAL OBJECTIVES

The overriding aim of DigiMan, an industry led and commercialisation focused project, is to develop an EU-centric production capability for automotive PEM fuel cell stacks and their key components with volume manufacturing scalability and embedded quality control at its heart. The stack and components will be based on PEM fuel cell technology for automotive zero emission range extender application developed by Intelligent Energy Ltd.

#### SPECIFIC OBJECTIVES

- Delivering automated manufacturing maturity to fuel cell stack and components
- Establishing an integrated European supply chain for key fuel cell components
- Embedding quality in automotive stack production process to a 'blueprint' reference design, for full automation within an automotive value chain via PoP (Proof-of-Process) demonstrator testing and simulation tools.

### OUTPUTS

- Creation of robust platform for PEM fuel cell stack production for zero emission vehicles
- Establish best practice requirements for automotive fuel cell stack production
- Demonstrate operational and supply chain cost reduction
- Seamless integration of digital manufacturing techniques with advanced automated production technology
- Enable build-to-print machine configurations with ready to scale production capacity
- Capability to meet requirement of more than 50,000 fuel cell stacks per annum by 2020



Intelligent Energy  
Air Cooled Fuel Cell Stack